

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-29 (Canceled).

Claim 30 (New): A field emission device, comprising:

a cathode;

a porous insulating layer includes open zones, which are pores of the layer;

a conductive layer as a gate layer, including at least one layer of catalyst material for forming electron emitters and at least one layer of a conductive material not catalyzing formation of electron emitters; and

electron emitters in the open zones of the insulating layer and the gate layer.

Claim 31 (New): A device according to claim 30, further comprising a resistive layer arranged between the cathode and the insulating layer.

Claim 32 (New): A device according to claim 30, wherein the electron emitters are constituted by nanotubes or nanofibers.

Claim 33 (New): A device according to claim 30, wherein the electron emitters are made of carbon.

Claim 34 (New): A device according to claim 30, wherein the electron emitters are made of a metallic material.

Claim 35 (New): A device according to claim 24, wherein the electron emitters are made of molybdenum or palladium.

Claim 36 (New): A device according to claim 30, wherein the electron emitters are made of an emitting semiconductor material.

Claim 37 (New): A device according to claim 36, wherein the electron emitters are made of silicon.

Claim 38 (New): A device according to claim 30, wherein the insulating layer is made of alumina.

Claim 39 (New): A device according to claim 30, wherein the open zones or the pores have a diameter between 5 nm and 25 nm.

Claim 40 (New): A method for producing a field emission device, comprising:
forming a cathode;
forming a porous insulating layer, including open zones that are pores in the layer;
forming a conductive layer, as a gate layer, including at least one layer of catalyst material for forming electron emitters and at least one layer of a conductive material not catalyzing formation of electron emitters; and
forming electron emitters in the open zones of the insulating layer and the gate layer.

Claim 41 (New): A method according to claim 40, further comprising forming a resistive layer, between the cathode and the insulating layer.

Claim 42 (New): A method according to claim 41, wherein the resistive layer is made of amorphous silicon.

Claim 43 (New): A method according to claim 40, wherein the emitters are nanotubes or nanofibers.

Claim 44 (New): A method according to claim 40, wherein the emitters are made of carbon.

Claim 45 (New): A method according to claim 40, wherein the electron emitters are obtained by electrochemical deposition of an emitting metal.

Claim 46 (New): A method according to claim 40, wherein the insulating layer, or the second insulating layer, is produced from an aluminum layer.

Claim 47 (New): A method according to claim 40, wherein the cathode is made of titanium nitride (TiN), molybdenum, chromium, or tantalum nitride (TaN).

Claim 48 (New): A method according to claim 40, wherein the catalyst is made of nickel, or iron or cobalt, or an oxide of these materials.

Claim 49 (New): A method for producing a field emission device, comprising:

forming a cathode;

forming a first insulating porous layer, and then a gate layer;

forming a second insulating porous layer and open zones in the second insulating layer, the open zones being pores of the layer;

etching the gate layer and the first insulating layer, through the open zones of the first insulating layer; and

forming electron emitters, on catalyst zones, exposed at a base of the etched zones of the first insulating layer.

Claim 50 (New): A method according to claim 49, further comprising forming a catalyst layer prior to the forming of the first insulating layer.

Claim 51 (New): A method according to claim 50, further comprising removing the second insulating layer, before or after the forming of electron emitters.

Claim 52 (New): A method according to claim 49, further comprising depositing, at least in the etched zones of the first insulating layer, a catalyst material, after etching of the gate layer and the first insulating layer.

Claim 53 (New): A method according to claim 52, further comprising removing the second insulating layer, after depositing the catalyst material.

Claim 54 (New): A method according to claim 52, further comprising removing the second insulating layer, before depositing the catalyst material, then depositing the catalyst material in the etched zones of the first insulating layer and on the non-etched zones of the gate.

Claim 55 (New): A method according to claim 54, further comprising forming a metallic layer on the catalyst layer deposited on the gate.

Claim 56 (New): A method according to claim 49, wherein a resistive layer, or a layer of amorphous silicon, is arranged on the cathode.

Claim 57 (New): A method according to claim 49, wherein the emitters are nanotubes or nanofibers.

Claim 58 (New): A method according to claim 57, wherein the nanotubes are obtained by pure catalytic growth or with RF plasma.

Claim 59 (New): A method according to claim 49, wherein the emitters are made of carbon.

Claim 60 (New): A method according to claim 49, wherein the electron emitters are obtained by electrochemical deposition of an emitting metal.

Claim 61 (New): A method according to claim 49, wherein the insulating layer, or the second insulating layer, is produced from an aluminum layer.

Claim 62 (New): A method according to claim 61, wherein the open zones or the pores are produced by anodization of the aluminum layer.

Claim 63 (New): A method according to claim 49, wherein the cathode is being made of titanium nitride (TiN), molybdenum, chromium, or tantalum nitride (TaN).

Claim 64 (New): A method according to claim 49, wherein the catalyst is made of nickel, or iron or cobalt, or an oxide of these materials.